

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 62-272172

(43)Date of publication of application : 26.11.1987

(51)Int.Cl.

G01S 5/14

(21)Application number : 61-113525

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(22)Date of filing : 20.05.1986

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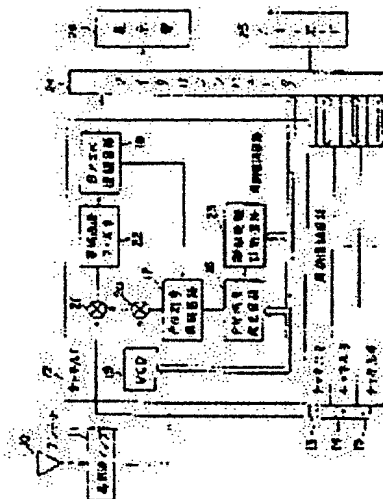
SAKAMOTO SHINICHI

(54) ARITHMETIC UNIT FOR GPS POSITION MEASUREMENT

(57)Abstract:

PURPOSE: To perform invariably accurate position measurement calculation by investigating the rate of variation in the arrival time of an epoch signal from each satellite which is necessary for pseudo range calculation and interrupting normal pseudo range arithmetic when it exceeds a prescribed value.

CONSTITUTION: Global positioning system (GPS) satellite signals which are received by an antenna 10 from four satellites are converted 11 in terms of frequency and inputted to synchronous demodulating circuits 12W15 of channels 1W4. The circuits 12W15 input PN codes which are generated 16 to PN code circuits 17 and use outputs of BPSK demodulating circuits 18 as feedback signals; and the phases of the PN codes which are generated 17 are controlled and inputted to modulators 20, so that the outputs of voltage-controlled oscillator 19 are modulated 20. The outputs of the modulators 20 are supplied to a microcomputer (MC) 24 through modulators 21, band-pass filters 21, and circuits 18. A pseudo range measuring circuit 23, on the other hand, measures artificial distance from the propagation delay time of a signal from a satellite and supplies the result to the MC 24. The MC 24 performs position measurement arithmetic and the result is displayed 26.



LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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